

3.2 Risk Assessment in Fire Management Planning

1. BACKGROUND

Managing bushfire risk is about taking reasonable steps to mitigate risks within current or potential resourcing levels, consistent with the Department of Environment, Water and Natural Resources (DEWNR) [Risk Management Procedure](#).

Managing bushfire risk encompasses:

- identifying risks to life, property and the environment posed by fire;
- developing strategies to address the highest risks; and
- implementing works and activities within reasonable resource requirements.

A Fire Management Plan is the risk management instrument for illustrating the risks to life, property and environmental values in and around DEWNR managed lands arising from fires. A Fire Management Plan will utilise risk assessment to develop fire management objectives and strategies.

2. SCOPE

This procedure applies to all DEWNR staff involved in the development of Fire Management Plans, including members of relevant Planning Teams and associated committees and stakeholder reference groups, as well as those required to endorse or authorise the release of Fire Management Plans.

3. OBJECTIVES

DEWNR will ensure that:

- a standard and consistent approach in identifying, analysing and evaluating risks in fire management planning is implemented and reviewed;
- this procedure will be implemented as part of the fire management planning process, as described in the DEWNR Fire Policy and Procedure 3.1 – Fire Management Planning Project Management;
- the approach is consistent with the Australian and New Zealand Standard for Risk Management (AS/NZS ISO 31000:2009) and the [DEWNR Risk Management Procedure](#);
- the approach is also consistent with the risk assessment process used by the SA Country Fire Service (CFS) in the development of Bushfire Management Area Plans under the *Fire and Emergency Services Act 2005*;
- risks to life, property and the environment are identified and considered in risk assessments;
- appropriate options are considered to mitigate fire risk; and
- strategies are developed to address the areas of higher risk and these risks are justified and communicated.

4. PROCEDURE DETAILS

Risk assessment will be undertaken to assess and identify management strategies at a landscape scale, including nearby DEWNR-managed land and land that DEWNR does not manage.

Risk will be described in all DEWNR Fire Management Plans as objectives and strategies.

Method

This procedure has been developed to assess risk specifically associated with bushfires. As such, it differs from the AS/NZS ISO 31000:2009 and associated National Emergency Risk Assessment Guidelines (2010) and the [DEWNR Risk Management Procedure](#) in:

- the wording of the criteria for ranking likelihood and consequence is tailored for assessing

bushfire risk to life, property and environmental value(s);

- that the first risk assessment identifies the situation and existing issues and determines what the risk is given the status quo;
- that it requires written justification for the rankings given for likelihood and consequence to illustrate the decision-making and thinking behind the ranking;
- seeking, as a minimum, to align with the risk assessment matrix used in the development of Bushfire Management Area Plans by CFS under the *Fire and Emergency Services Act 2005*; and
- risks to cultural and heritage values are assessed during the risk assessment process, in line with the DEWNR Fire Policy and Procedure 5.12 - Protection of Cultural Heritage.

Likelihood

Likelihood considers the chance that a fire-associated risk will occur. This does not assess the likelihood of ignition in isolation; it also considers the probability of a fire having an impact once it starts.

Fire history in the area may be a starting point, but should not be the only consideration. Anecdotal evidence, incidents in similar areas, fuels, fire behaviour and weather, and terrain will assist in assessing the likelihood.

The five categories of likelihood are described in the table below.

Likelihood	Description for Life and Property, Environmental Values
Almost Certain (sure to happen)	Is expected to occur in most circumstances; and/or high level of recorded incidents and/or strong anecdotal evidence; and/or strong likelihood the event will recur; and/or great opportunity, reason or means to occur; for example, may occur once every fire season or more.
Likely (probable)	Will probably occur in most circumstances; and/or regular recorded incidents and strong anecdotal evidence; and/or considerable opportunity, reason or means to occur; for example, may occur once every five years.
Possible (feasible but < probable)	Should occur at some stage; and/or few, infrequent, random recorded incidents or little anecdotal evidence; and/or very few incidents in associated or comparable organisations, facilities, parks, habitats, populations or communities; and/or some opportunity, reason or means to occur; for example, may occur once every twenty years.
Unlikely (improbable, not likely)	Could occur; and/or no recorded incidents or anecdotal evidence; and/or no recent incidents in associated organisations, facilities, parks, habitats, populations or communities; and/or little opportunity, reason or means to occur; for example, may occur once every one hundred years.
Rare (very unusual)	May occur only in exceptional circumstances; for example, may occur once every five hundred or more years.

Consequence

Consequence is the outcome or impact of a fire event on life, property, or the environment.

The consequence ratings below will be used during the risk assessment to categorise and describe the scale of the impact of a fire. Consequence ratings are informed by assessing the impacts on community (i.e. injuries and fatalities, access to services), economy (i.e. loss of assets, cost of recovery, financial impacts), and environment (i.e. species, populations, ecological communities and processes).

The five categories of consequence are described in the following table. They are indicative and intended to guide the risk assessment process, rather than to be used as definitive measures of consequence.

Consequence	Description for Life and Property
Critical (extensive disaster)	Large number of severe injuries. Extended and large numbers requiring hospitalisation. General widespread displacement for extended duration. Extensive number of fatalities. Extensive personal support. Extensive damage. Community unable to function without significant support.
Major (very serious or significant)	Extensive injuries, significant hospitalisation, large number displaced (more than 24 hours duration). Possible fatalities. External resources required for personal support. Significant damage that requires external resources. Community only partially functioning, some services unavailable. Significant financial loss – some financial assistance required.
Moderate (not extreme or excessive)	Medical treatment required but no fatalities. Some hospitalisation. Localised displacement of people who return within 24 hours. Personal support satisfied through local arrangements. Localised damage that is rectified by routine arrangements. Normal community functioning with some inconvenience. Significant financial loss.
Minor (of little importance)	Small number of injuries but no fatalities. First aid treatment required. Some displacement of people (less than 24 hours). Some personal support required. Some damage. Some disruption (less than 24 hours). Some financial loss.
Insignificant	No fatalities or injuries. Small number or no people are displaced and only for short duration. Little or no personal support required (support not monetary or material). Inconsequential or no damage. Little or no disruption to community. Little or no financial loss.

Consequence	Description for Environmental Values
Critical (extensive disaster)	Extensive impact on environment and/or permanent damage at the regional or state scale on habitat(s) and populations. Extinction of a species or ecological community. Extensive number of deaths and displacement of wildlife. Highly significant changes to threatening processes. Extensive and ongoing rehabilitation required.
Major (very serious or significant)	Some impact on environment with long-term effects. Large scale death and long-term displacement of wildlife. Local extinction of a population. Very serious impact on habitats at a district or regional scale. Significant changes to threatening processes. Long term rehabilitation required.
Moderate (not extreme or excessive)	Some impact on environment with no long-term effect or small impact on environment with long-term effect. Short-term local impact on habitat(s). Local death and short-term displacement of wildlife. Noticeable changes to threatening processes. Some environmental management required.
Minor (of little importance)	Small impact on environment with no permanent effects. Limited impact on habitat(s). Small number of wildlife deaths. Some local displacement of wildlife. Short-term changes to threatening processes (weed invasion, feral animals, etc.). Minor environmental management required.
Insignificant	No measurable impact on environment; inconsequential or no environmental damage. No loss of flora and fauna populations, species, ecological communities or habitats. Little or no disruption to ecological processes.

Risk matrix

Likelihood and consequence ratings are combined to produce the risk rating, as shown in the risk matrix.

		Likelihood				
		Rare	Unlikely	Possible	Likely	Almost Certain
Consequence	Critical	High	High	Very High	Extreme	Extreme
	Major	Medium	Medium	High	Very High	Extreme
	Moderate	Medium	Medium	Medium	High	Very High
	Minor	Low	Low	Medium	Medium	High
	Insignificant	Low	Low	Low	Medium	Medium

Application of risk ratings

The highest risk ratings are addressed in the strategies contained within a Fire Management Plan using the following principles:

- Where a *High* risk rating or greater is identified, A- and B-zones should be allocated to prioritise risk management works.
- Where burning of a whole block/reserve/area in a single bushfire event is considered a *High* risk or above, a B-zone to strategically reduce this risk through fuel management is an appropriate mitigation measure.
- A clearly defined, strategic program of *landscape protection* C-zone burning may also be an appropriate way to mitigate the risk of a whole block/reserve/area burning in a single bushfire event where it is assessed as less than *High*.

5. ROLES AND RESPONSIBILITIES

The **Chief Executive** has the ultimate responsibility for the effective implementation of this procedure.

Fire Management, Partnerships and Stewardship, is responsible for the implementation and review of this procedure and ensuring that the resources, information and training are made available for staff to implement this procedure.

The **Manager, Fire Management** will ensure that:

- DEWNR Regions and stakeholders are aware of this procedure and its requirements;
- the implementation of this procedure is adequately monitored for its effectiveness; and
- the procedure is reviewed and updated.

The **Senior Fire Management Officer – Planning**, Fire Management is responsible for:

- providing support on any aspects of risk assessment in fire management planning;
- identifying resource needs for supporting risk assessment;
- ensuring strategies for risk management are appropriate to the level of risk; and
- ensuring that risk assessment is consistent across the state and with the definitions contained within this procedure.

Regional Managers are responsible for providing appropriate resources to support the risk assessment process.

The **Fire Management Officer – Planning**, Fire Management (or the appointed Planner) is responsible for coordinating the risk assessment, including:

- identifying risks;
- collating information from the risk assessment, including justification for levels of risk;
- developing (in consultation with the Regional Fire Management Officer) strategies and options to manage the risks;
- ensuring the plan clearly articulates the highest or highest priority risks; and
- communicating risks to the planning team, stakeholder reference group and other stakeholders.

Regional Fire Management Officers are responsible for undertaking the whole risk assessment process collectively with the Planner, and also:

- assessing and analysing the risks;
- justifying the risk ratings; and
- engaging the region in the risk assessment process and in the development of risk management strategies.

Regional staff are responsible for having input into the risk assessment process, as requested by the Regional Fire Management Officer.

6. ASSOCIATED DOCUMENTS

DEWNR Risk Assessment Worksheet – available from Fire Management

DEWNR Fire Policy and Procedure – Fire Management Planning Project Management

DEWNR Fire Policy and Procedure – Fire Management Zoning

7. REFERENCES

[Synopsis of the Australian and New Zealand Standard for Risk Management](#)

Australian Standard

Cultural Heritage Policy

[DEWNR Risk Management Procedure](#)